

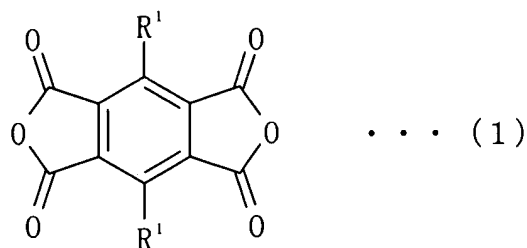
**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently amended) A laminate, comprising a metal layer and a polyimide film, the metal layer being directly formed on the polyimide film having a dynamic viscoelasticity whose  $\tan \delta$  peak is located in a range of not less than 310°C but not more than 410°C, and whose  $\tan \delta$  value at 300°C is not more than 0.05.

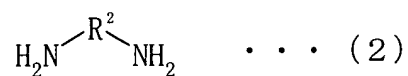
2. (Currently amended) The ~~polyimide film~~ laminate as set forth in Claim 1, the polyimide film prepared by copolymerizing an acid dianhydride component and a diamine component,  
the acid dianhydride component including a pyromellitic dianhydride represented by Equation (1):



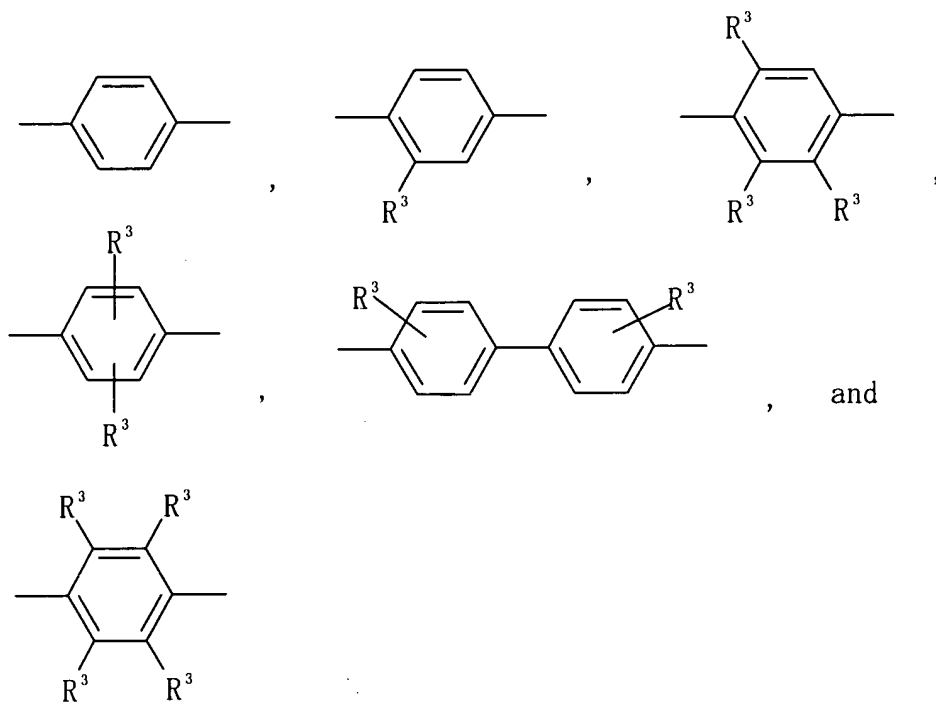
(~~where~~ where  $R^1$  is a residue selected from a group consisting of H-,  $CH_3$ -,  $CF_3$ -, Cl-, Br-, F-, and  $CH_3O$ -, and  $R^1$  may be the same residues

or different ~~residues~~ residues, and the diamine component including a paraphenylene diamine and a diaminodiphenyl ether,

the paraphenylene diamine being represented by Equation (2):



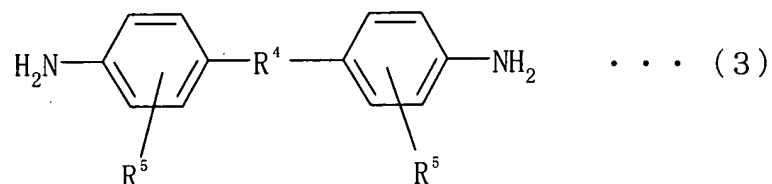
~~(where~~ where  $\text{R}^2$  is a bivalent aromatic group selected from a group consisting of:



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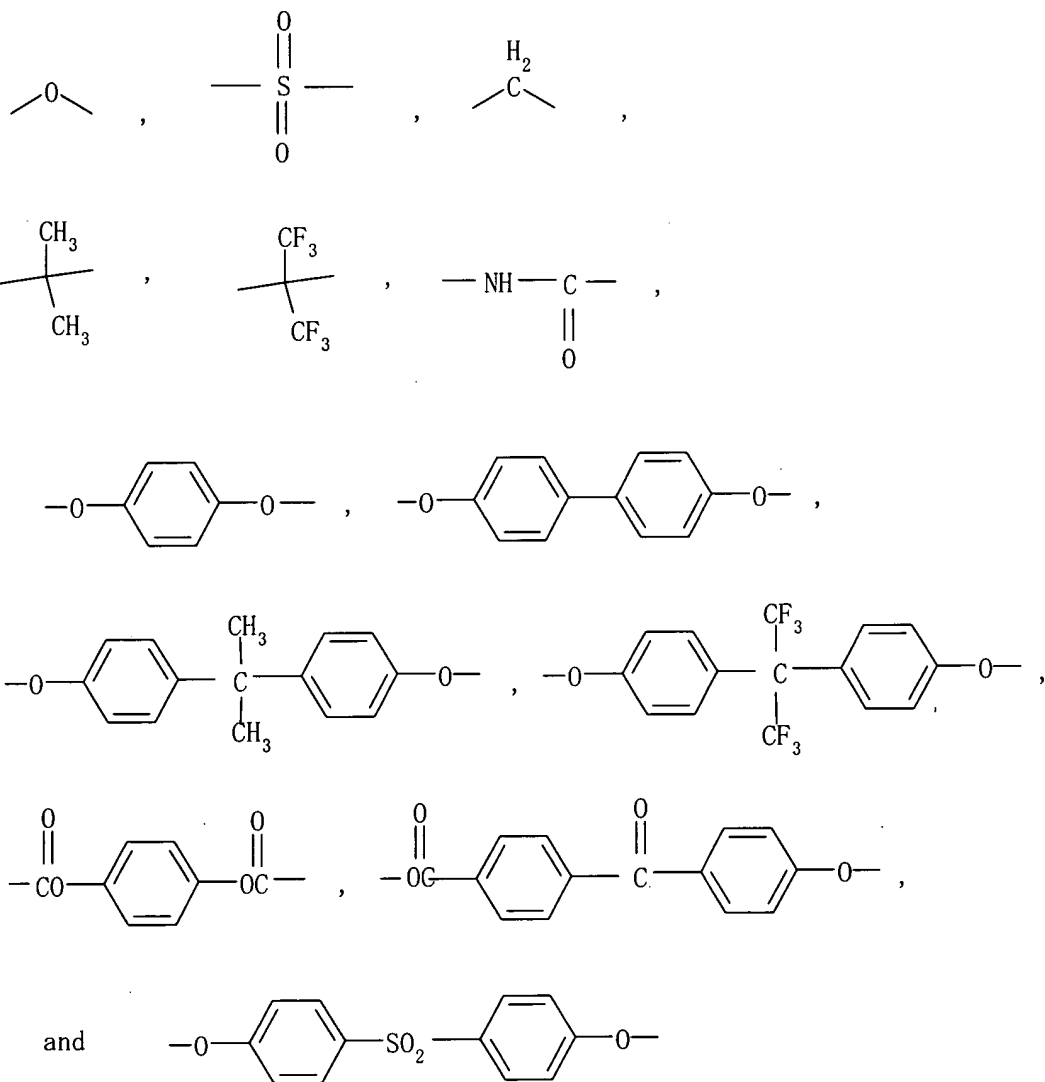
and each  $R^3$  in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, and ~~-OCH<sub>3</sub>~~ -OCH<sub>3</sub>, and the diaminodiphenyl ether being represented by General Formula (3):



(~~where~~ where  $R^4$  is a bivalent organic group selected from a group consisting of:

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and each R<sup>5</sup> in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, and ~~-OCH<sub>3</sub>~~ -OCH<sub>3</sub>.

3. (Currently amended) The ~~polyimide film laminate~~ laminate as set forth in Claim 2, wherein:

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the acid dianhydride component includes the pyromellitic dianhydride in a range of from 5 mole% to 90 mole%.

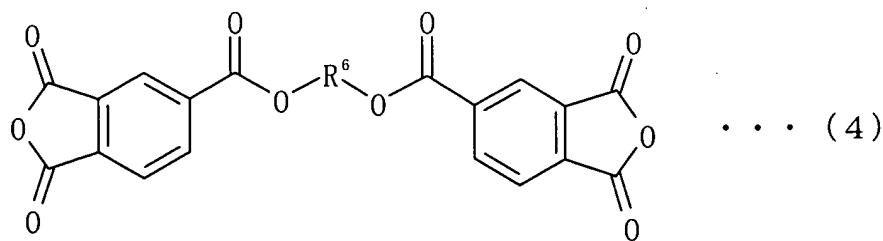
4. (Currently amended) The ~~polyimide film~~ laminate as set forth in Claim 2, wherein:

the diamine component includes the paraphenylene diamine in a range of from 25 mole% to 75 mole%, and diaminodiphenyl ether in a range of from 25 mole% to 75 mole%.

5. (Currently amended) The ~~polyimide film~~ laminate as set forth in Claim 2, wherein:

the acid dianhydride component further includes a bis(trimellitic monoester anhydride) and/or a biphenyl tetracarboxylic dianhydride,

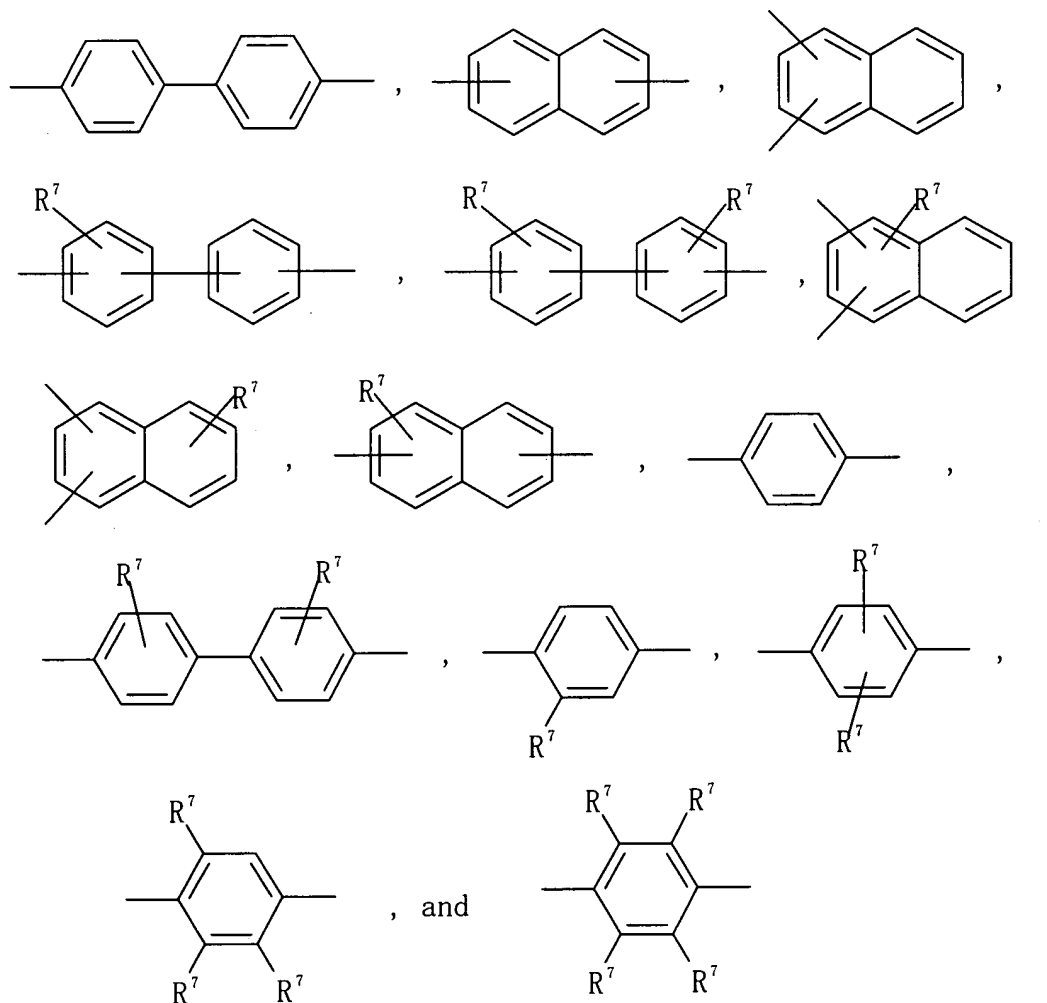
the bis(trimellitic monoester anhydride) being represented by General Formula (4):



~~where~~ where  $R^6$  is a bivalent organic group selected from a group consisting of:

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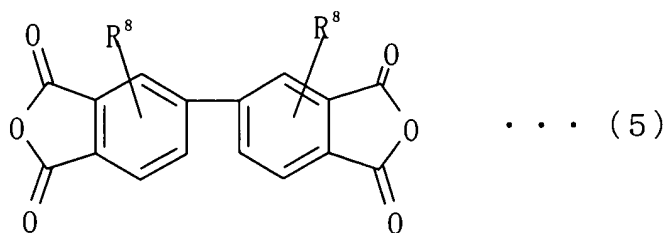


and each  $R^7$  is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, and ~~-CO-NH<sub>2</sub>~~ and -CO-NH<sub>2</sub>, and

the biphenyl tetracarboxylic dianhydride being represented by General Formula (5):

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(~~where~~ where  $R^8$  is a residue selected from a group consisting of H-,  $CH_3$ -, Cl-, Br-, F- and  $CH_3O$ -, and  $R^8$  may be the same residues or the different ~~residues~~) residues.

6. (Currently amended) The ~~polyimide film~~ laminates as set forth in Claim 5, wherein

the acid dianhydride component includes the bis(trimellitic monoester anhydride) in a range of from 20 mole% to 40 mole%.

7. (Currently amended) The ~~polyimide film~~ laminates as set forth in Claim 5, wherein

the acid dianhydride component includes the biphenyl tetracarboxylic dianhydride in a range of from 0 mole% to 50 mole%.

8. (Currently amended) The ~~polyimide film~~ laminates as set forth in Claim 1, wherein:

a coefficient of hygroscopic expansion is 16ppm/%RH or less, and a water absorption percentage is 2.0% or less.

9-10. (Canceled)

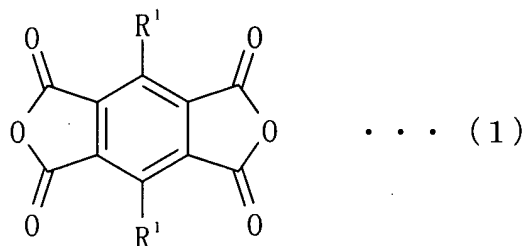
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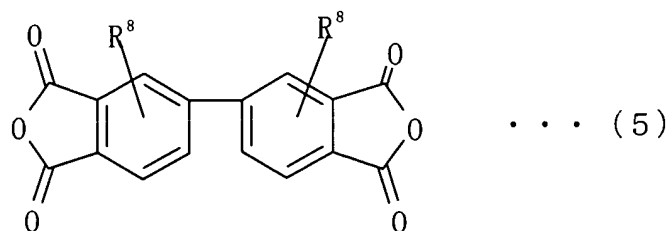
11. (Currently amended) A polyimide film prepared by copolymerizing an acid dianhydride component and a diamine component,

the acid dianhydride component including a pyromellitic dianhydride and a biphenyl tetracarboxylic dianhydride,

the pyromellitic dianhydride being represented by General Formula (1):



~~(where~~ where  $R^1$  is a residue selected from a group consisting of H-,  $CH_3$ -,  $CF_3$ -, Cl-, Br-, F-, and  $CH_3O$ -, and  $R^1$  may be the same residues or different ~~residues~~) residues, and the biphenyl tetracarboxylic dianhydride being represented by General Formula (5):



~~(where~~ where  $R^8$  is a residue selected from a group consisting of H-,  $CH_3$ -, Cl-, Br-, F- and  $CH_3O$ -, and  $R^8$  may be the same residues or the different ~~residues~~) residues, and



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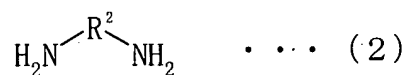
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the polyimide film having such an etching speed that one side thereof is etched with a 1N potassium hydroxide solution at an etching speed of 0.1 $\mu$ m/minute (one side) or higher.

12. (Currently amended) The polyimide film as set forth in Claim 11, wherein:

the diamine component includes a paraphenylene diamine and/or a diaminodiphenyl ether,

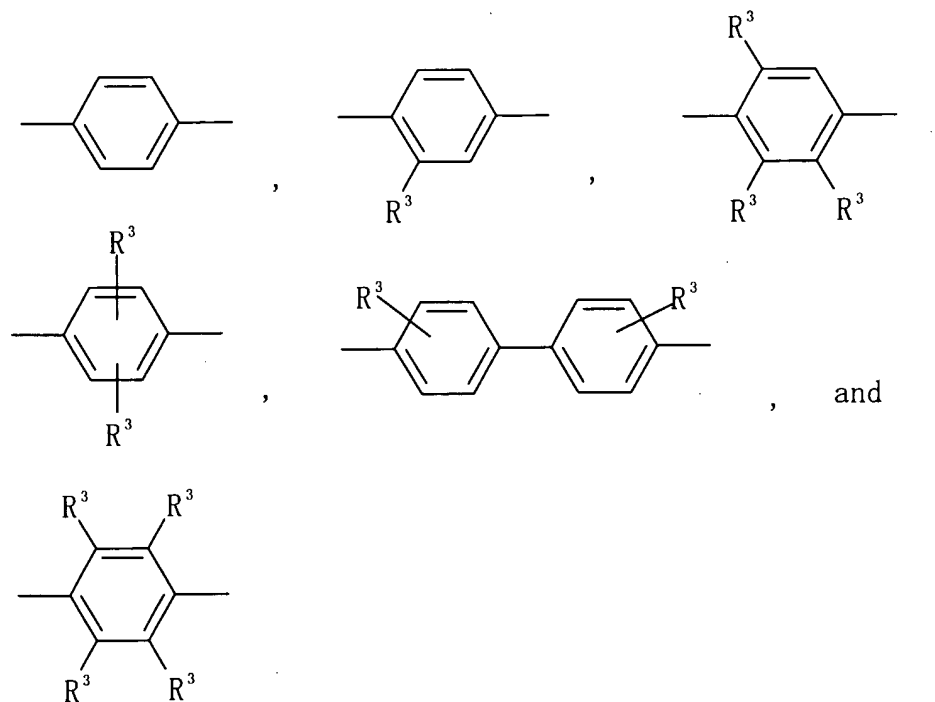
the paraphenylene diamine being represented by General Formula (2):



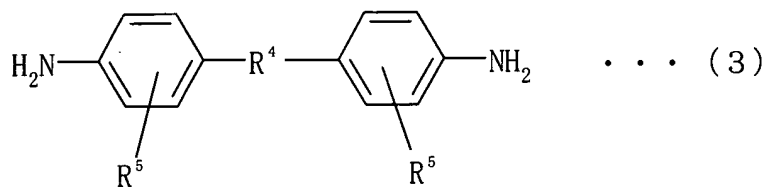
~~(where~~ where  $\text{R}^2$  is a bivalent aromatic group selected from a group consisting of:

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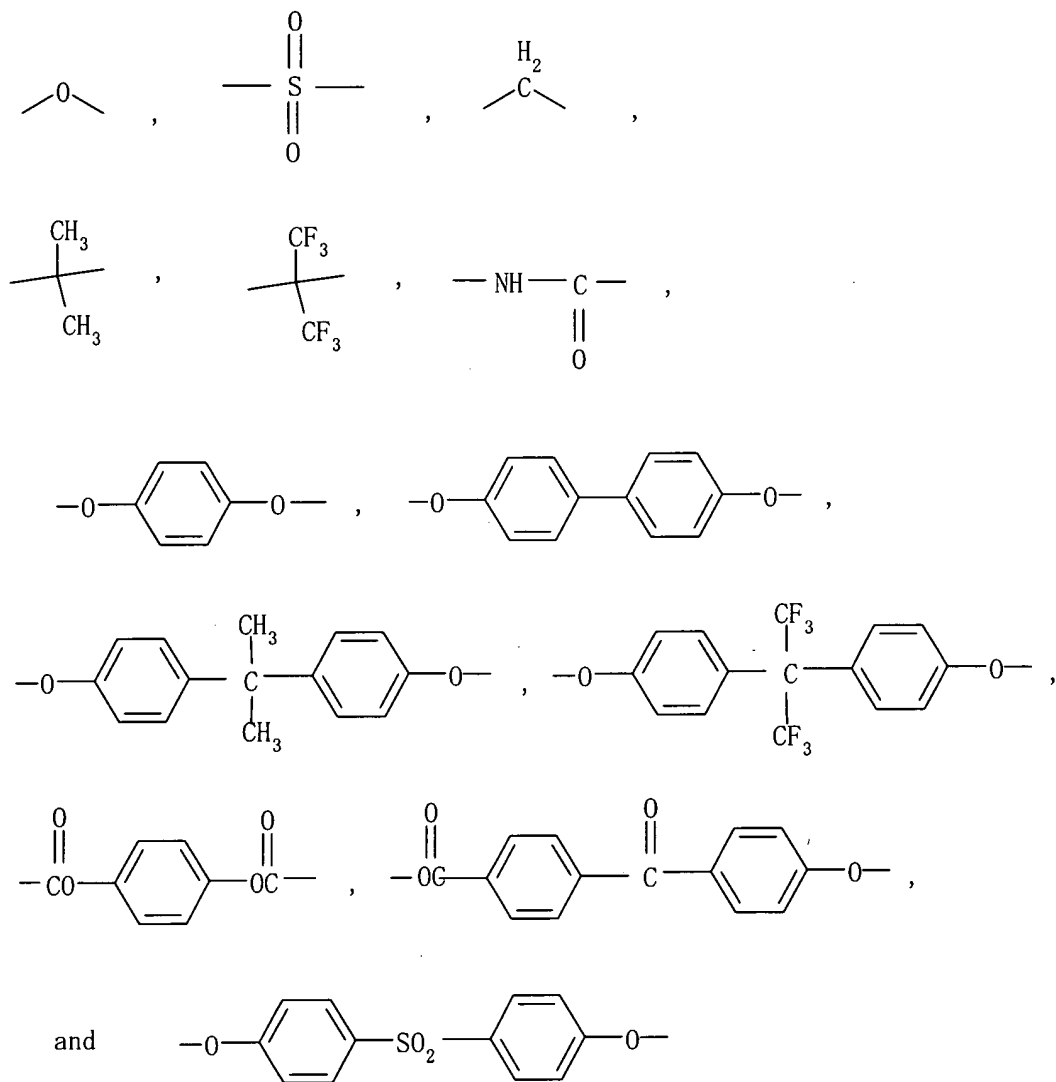
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and each  $R^3$  in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, and ~~-OCH<sub>3</sub>~~ -OCH<sub>3</sub>, and the diaminodiphenyl ether being represented by General Formula (3):



(~~where~~ where  $R^4$  is a bivalent organic group selected from a group consisting of:



and each R<sup>5</sup> in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, and ~~-OCH<sub>3</sub>~~ -OCH<sub>3</sub>.

13. (Original) The polyimide film as set forth in Claim 11, wherein:

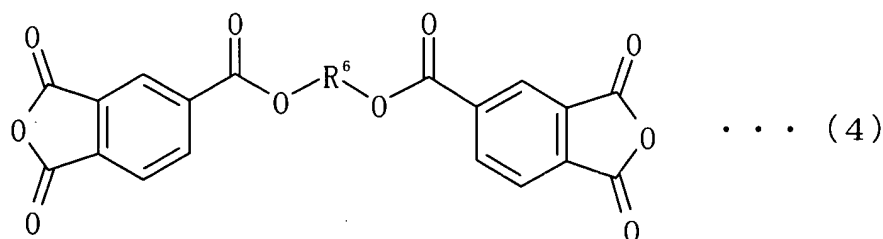
the acid dianhydride component includes the pyromellitic dianhydride in a range of from 30 mole% to 99.9 mole%, and the biphenyl tetracarboxylic dianhydride in a range of from 0.1 mole% to 50 mole%.

14. (Original) The polyimide film as set forth in Claim 12, wherein:

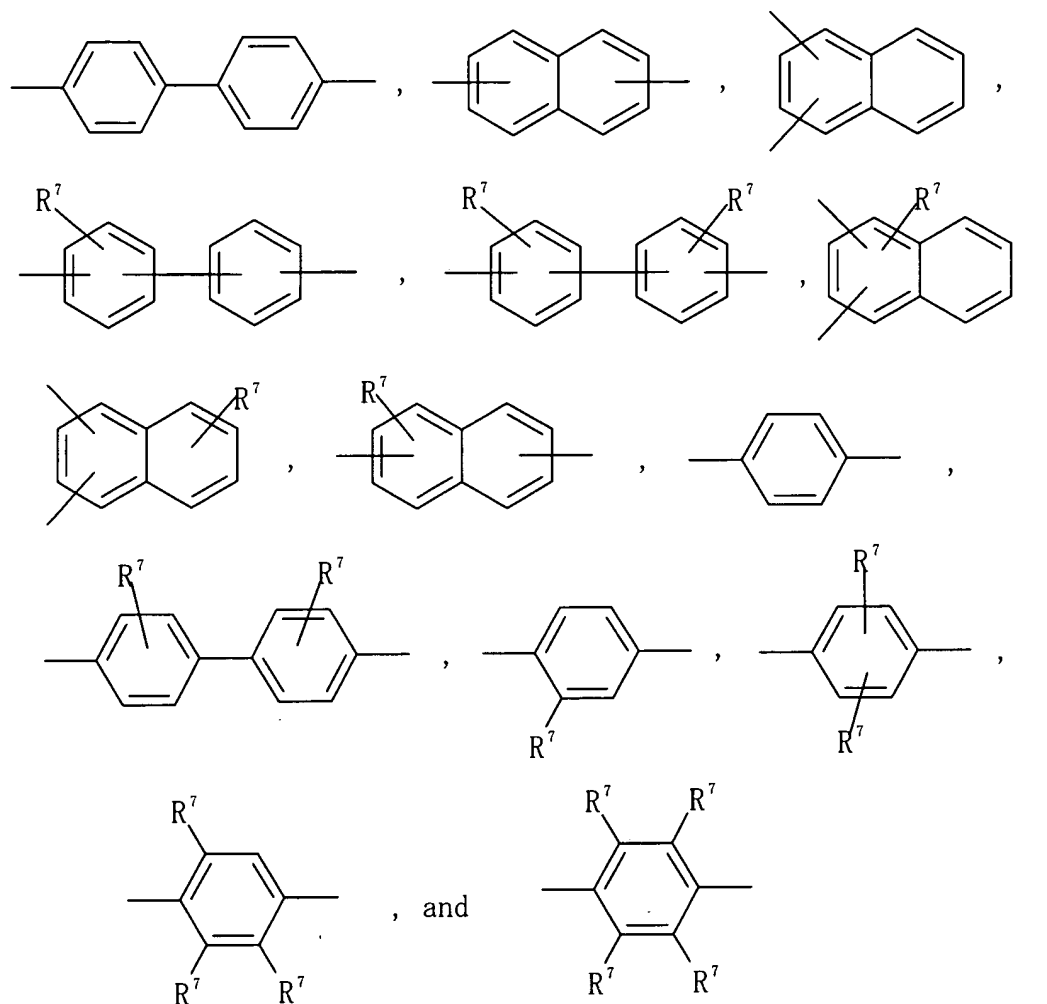
the diamine component includes the paraphenylene diamine in a range of from 15 mole% to 85 mole%, and diaminodiphenyl ether in a range of from 15 mole% to 85 mole%.

15. (Currently amended) The polyimide film as set forth in Claim 12,

the acid dianhydride component further includes a bis(trimellitic monoester anhydride) being represented by General Formula (4):



~~(where~~ where  $R^6$  is a bivalent organic group selected from a group consisting of:



and each R<sup>7</sup> is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, and ~~-CO-NH<sub>2</sub>~~ -CO-NH<sub>2</sub>.

16. (Original) The polyimide film as set forth in Claim 15, wherein:

The acid dianhydride component includes the bis(trimellitic monoester anhydride) in a range of from 10 mole% to 50 mole%.

17. (Original) The polyimide film as set forth in Claim 11, wherein:

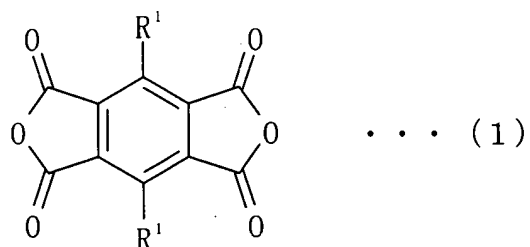
a retention percent of tear-through resistance of the polyimide film after exposing the polyimide film to environment of a temperature of 150°C, a humidity of 100%RH, and 4 atmospheric pressure for 48 hours is not less than 50%.

18. (Currently amended) Laminate, comprising:

a metal layer; and

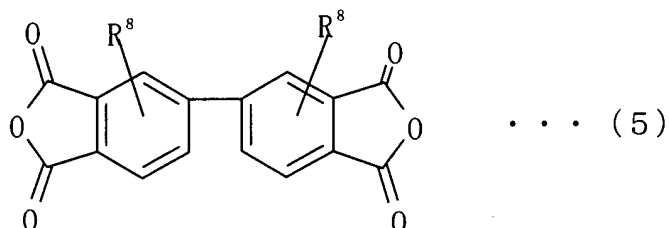
a polyimide film prepared by copolymerizing an acid dianhydride component and a diamine component,

the acid dianhydride component including a pyromellitic dianhydride and a biphenyl tetracarboxylic dianhydride, the pyromellitic dianhydride being represented by General Formula (1):



(~~where~~ where R¹ is a residue selected from a group consisting of H-, CH₃-, CF₃-, Cl-, Br-, F-, and CH₃O-, and R¹ may be the same residues or different ~~residues~~ residues, and

the biphenyl tetracarboxylic dianhydride being represented by General Formula (5):



~~(where~~ where  $R^8$  is a residue selected from a group consisting of H-,  $CH_3$ -, Cl-, Br-, F- and  $CH_3O$ -, and  $R^8$  may be the same residues or the different ~~residues~~ residues, and

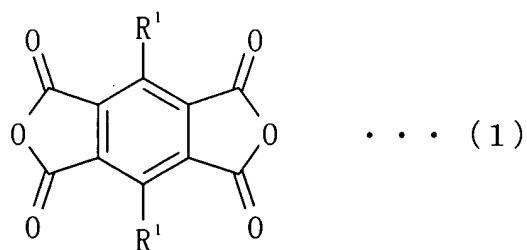
the polyimide film having such an etching speed that one side thereof is etched with a 1N potassium hydroxide solution at an etching speed of 0.1 $\mu$ m/minute (one side) or higher.

19. (Currently amended) A polyimide film prepared by copolymerizing an acid dianhydride component and a diamine component,

the acid dianhydride component including the pyromellitic dianhydride, represented by General Formula (1), in a range of from 40 mole% to 80 mole%, the biphenyl tetracarboxylic dianhydride, represented by General Formula (5) in a range of from 1 mole% to 40 mole%, and the bis(trimellitic monoester anhydride, represented by General Formula (4), in a range of from 20 mole% to 50 mole%, and

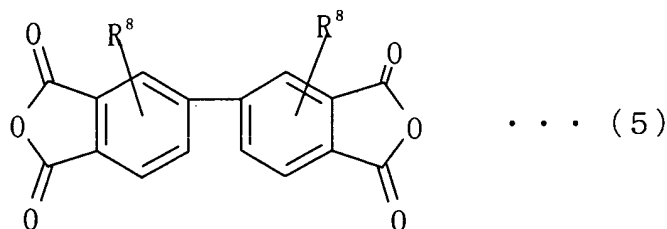
the diamine component including the paraphenylene diamine, represented by General Formula (2), in a range of 25 mole% to 75 mole%, and the diaminediphenyl ether, represented by General

Formula (3), in a range of 25 mole% to 75 mole%, where General Formula (1) is:



~~(where where~~ R¹ is a residue selected from a group consisting of H-, CH₃-, CF₃-, Cl-, Br-, F-, and CH₃O-, and R¹ may be the same residues or different ~~residues~~ residues;

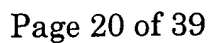
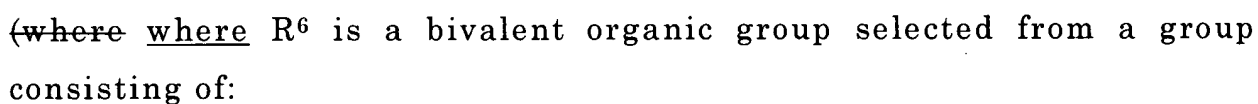
General Formula (5) is:



~~(where where~~ R⁸ is a residue selected from a group consisting of H-, CH₃-, Cl-, Br-, F- and CH₃O-, and R⁸ may be the same residues or the different ~~residues~~ residues;

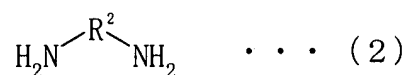
General Formula (4) is:



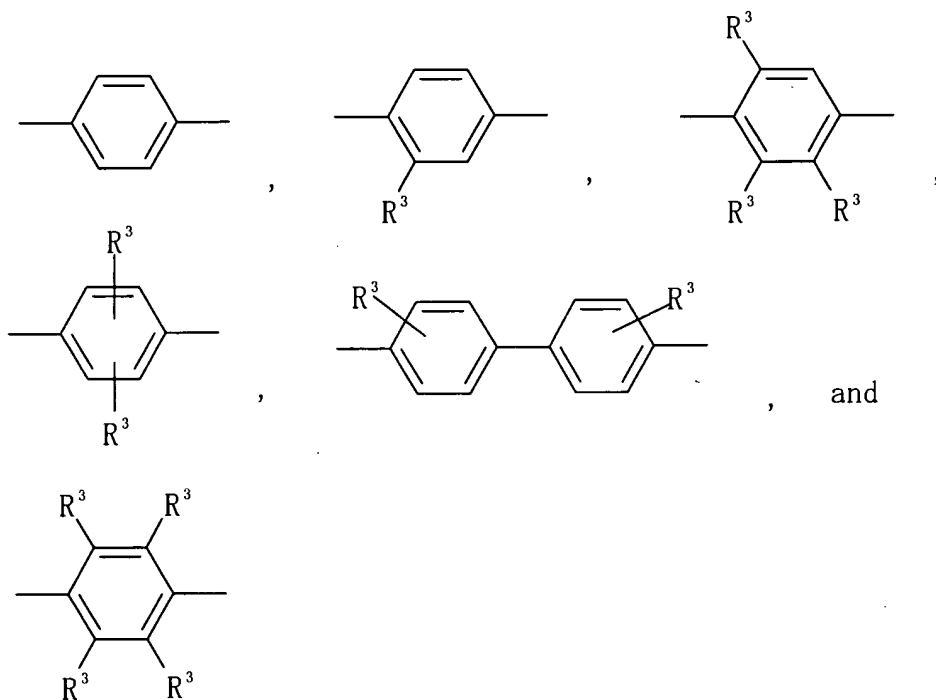


and each  $R^7$  is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, ~~and -CO-NH<sub>2</sub>~~ and -CO-NH<sub>2</sub>;

General Formula (2) is:



(~~where~~ where  $R^2$  is a bivalent aromatic group selected from a group consisting of:

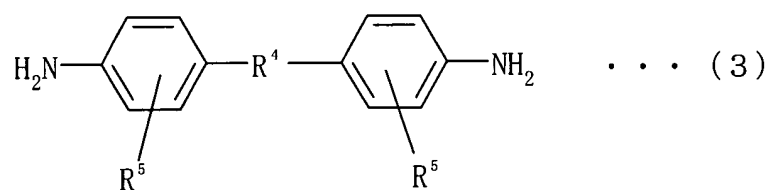


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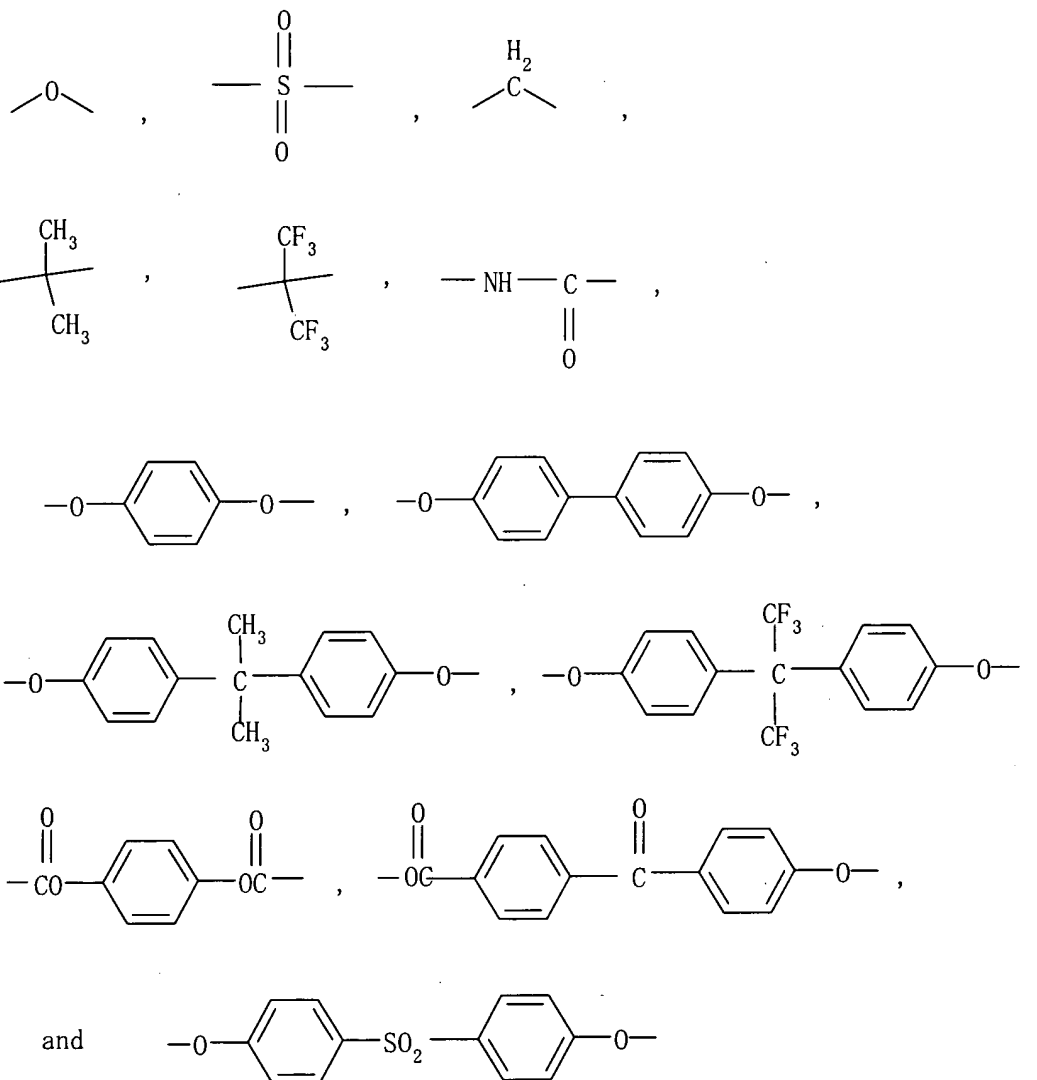
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and each  $R^3$  in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, ~~and -OCH<sub>3</sub>~~ and -OCH<sub>3</sub>; and

General Formula (3) is:



~~(where~~ where  $R^4$  is a bivalent organic group selected from a group consisting of:



and each R<sup>5</sup> in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, ~~and -OCH<sub>3</sub>~~ and -OCH<sub>3</sub>.

20. (Original) The polyimide film as set forth in Claim 19, the polyimide film having a thickness in a range of from 1μm to 200μm.

21. (Original) The polyimide film as set forth in Claim 19, the polyimide film having a modulus of elasticity in a range of from 500kg/mm<sup>2</sup> to 800kg/mm<sup>2</sup>.

22. (Original) The polyimide film as set forth in Claim 19, the polyimide film having a coefficient of hygroscopic expansion in a range of from 2ppm/%RH to 20ppm/%RH.

23. (Original) The polyimide film as set forth in Claim 19, the polyimide film having a coefficient of liner expansion in a range of 1 to  $30 \times 10^{-6}$ cm/cm/°C at a temperature of from 100°C to 200°C.

24. (Original) The polyimide film as set forth in Claim 19, wherein:

a peel strength at an interface between the polyimide film and a metal layer of laminate is not less than 5N/cm, the laminate having the polyimide film and the metal layer that is formed on the polyimide film by vacuum depositing and electroplating; and

a retention rate of the peel strength is not less than 10% after exposing the laminate to environment of a temperature of 121°C and a humidity of 100%RH for 12 hours.

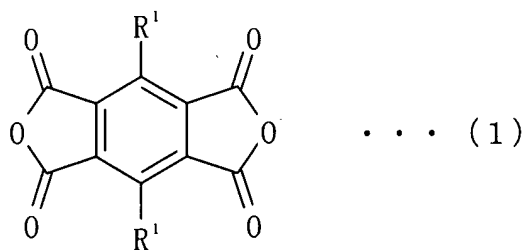
25. (Currently amended) Laminate comprising:

a metal layer; and

a polyimide film prepared by copolymerizing an acid dianhydride component and a diamine component,

the acid dianhydride component including the pyromellitic dianhydride, represented by General Formula (1), in a range of from 40 mole% to 80 mole%, the biphenyl tetracarboxylic dianhydride, represented by General Formula (5) in a range of from 1 mole% to 40 mole%, and the bis(trimellitic monoester anhydride), represented by General Formula (4), in a range of from 20 mole% to 50 mole%, and

the diamine component including the paraphenylene diamine, represented by General Formula (2), in a range of 25 mole% to 75 mole%, and the diaminediphenyl ether, represented by General Formula (3), in a range of 25 mole% to 75 mole%, where General Formula (1) is:

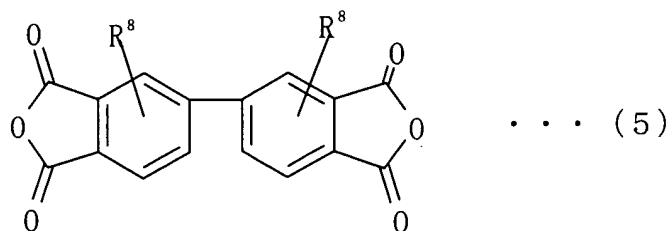


~~(where~~ where  $R^1$  is a residue selected from a group consisting of H-,  $CH_3$ -,  $CF_3$ -, Cl-, Br-, F-, and  $CH_3O$ -, and  $R^1$  may be the same residues or different ~~residues~~) residues;

General Formula (5) is:

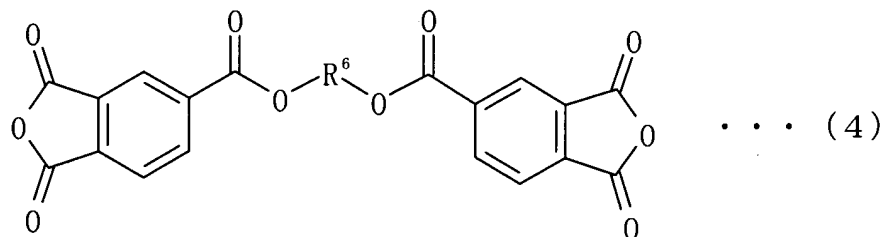
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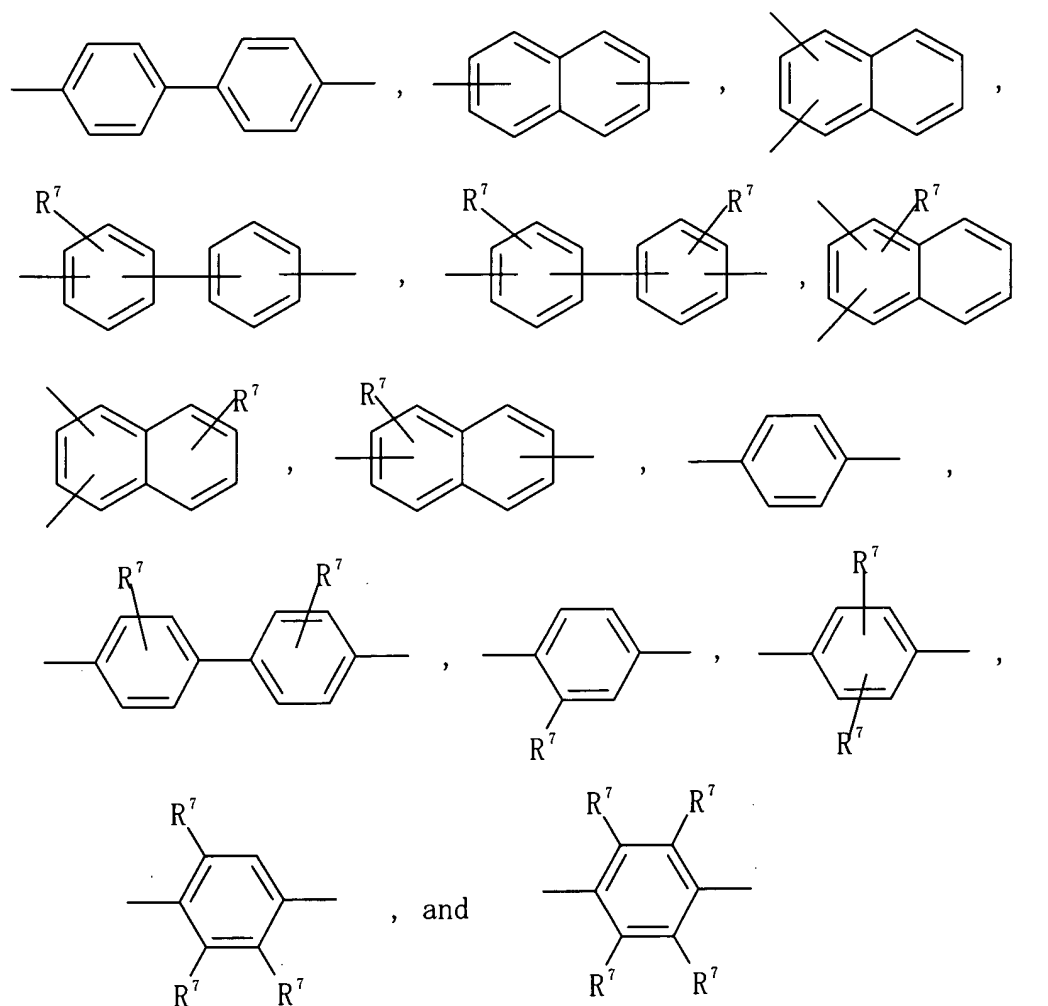


(~~where~~ where  $R^8$  is a residue selected from a group consisting of H-,  $CH_3$ -, Cl-, Br-, F- and  $CH_3O$ -, and  $R^8$  may be the same residues or the different residues) residues;

General Formula (4) is:

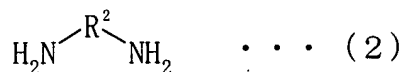


(~~where~~ where  $R^6$  is a bivalent organic group selected from a group consisting of:



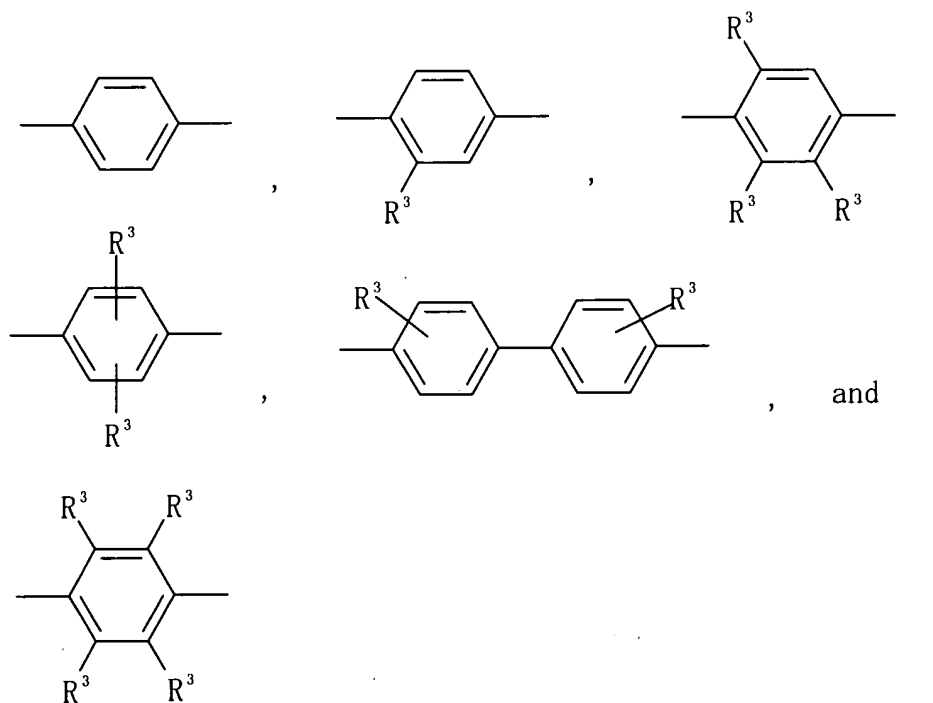
and each  $R^7$  is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, and ~~-CO-NH<sub>2</sub>~~ -CO-NH<sub>2</sub>;

General Formula (2) is:



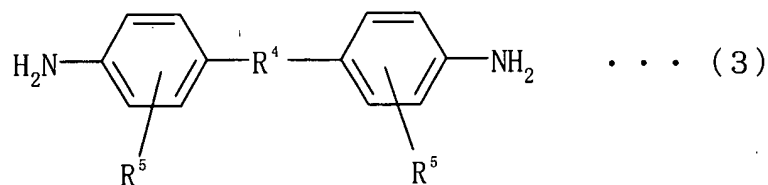


(where where  $R^2$  is a bivalent aromatic group selected from a group consisting of:

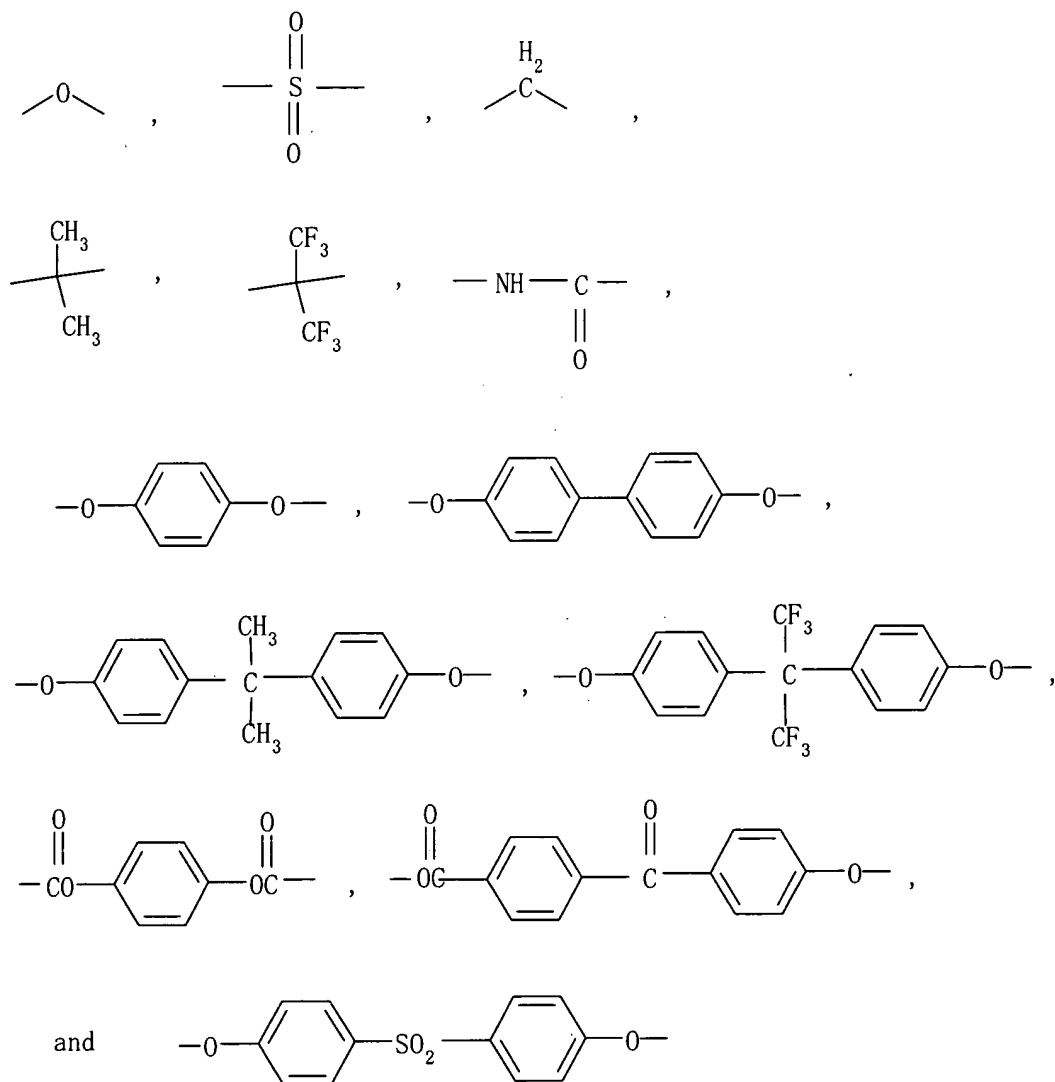


and each  $R^3$  in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, and ~~-OCH<sub>3</sub>~~ -OCH<sub>3</sub>; and

General Formula (3) is:



(where where  $R^4$  is a bivalent organic group selected from a group consisting of:



and each  $R^5$  in the group is independently any one of -H, -CH<sub>3</sub>, -OH, -CF<sub>3</sub>, -SO<sub>4</sub>, -COOH, -CO-NH<sub>2</sub>, -Cl, -Br, -F, and ~~-OCH<sub>3</sub>~~ -OCH<sub>3</sub>.